

WHAT IS CLAIMED IS:

1. A macro model of a programmable NROM for simulating the character of the NROM, wherein the NROM comprises a substrate, a drain located in the substrate, a source located in the substrate and a gate electrode located on the substrate between the source and the drain, and the gate electrode comprises a first oxide layer, a nitride material layer, a second oxide layer and a polysilicon layer, when the programmable NROM is under a forward reading operation mode, charges are trapped in the nitride material layer close to the drain to form a charge trapped region, the macro model of the NROM comprising of:

a normal MOS symbol element for representing a first MOS without having the charge trapped region, wherein the first MOS is constructed by a first gate electrode, a first drain and a first source; and

a short channel MOS symbol element for representing a second MOS with the charge trapped region, wherein the second MOS is constructed by a second drain, a second source coupled with the first drain and a second gate electrode coupled with the first gate electrode.

2. A macro model of a programmable NROM for simulating the character of the NROM, wherein the NROM comprises a substrate, a drain located in the substrate, a source located in the substrate and a gate electrode located on the substrate between the source and the drain, and the gate electrode comprises a first oxide layer, a nitride material layer, a second oxide layer and a polysilicon layer, when the programmable NROM is under a reverse reading operation mode, charges are trapped in the nitride material layer close to the source to form a charge trapped region, the macro model of the NROM comprising of:

a normal MOS symbol element for representing a first MOS without having the charge trapped region, wherein the first MOS is constructed by a first gate electrode, a first drain and a first source; and

- 5 a short channel MOS symbol element for representing a second MOS with the charge trapped region, wherein the second MOS is constructed by a second source, a second drain coupled with the first source and a second gate electrode coupled with the first gate electrode.